

**ABSTRACT**

Methods and apparatus are described for patterned deposition of nanostructure-containing materials by self-assembly and related articles. According to an exemplary embodiment self-assembly method for depositing nanostructure-containing materials includes forming a 5 nanostructure-containing material. The nanostructure-containing material is chemically functionalized and dispersed in a liquid medium to form a suspension. At least a portion of a substrate having a surface that can attract the functionalized nanostructure-containing material is brought into contact with the suspension. The substrate is separated from the suspension. The nanostructure-containing material adheres to the portion of the substrate when separated from the 10 suspension. According to another exemplary embodiment, hydrophilic and hydrophobic regions are formed on the surface of the substrate before bringing the substrate into contact with the suspension. The functionalized nanostructure-containing material is hydrophilic and adheres to the hydrophilic region of the substrate when separated from the suspension.